



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

SCHOOL COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT:C1 + TC1

Programme Name & Branch : B.Tech CSE & BDS
Course Code and Course Name : BCSE206L- Foundations of Data Science
Faculty Name(s) : Dr. Rajkumar R, Dr. Mythili T, Dr. Lavanya K, Dr. Shashank Mouli Satapathy, Dr. Keerthika C
Class Number(s) : VL24250502002, 2013, 1997, 2023, 1985
Date of Examination : 29-01-25
Exam Duration : 90 minutes
Maximum Marks: 50
General instruction(s): Answer All Questions

Q. No	Question	M	CO	BL
1.	Clarify the concept of Business Intelligence (BI) and its role in decision-making within an organization. Discuss various BI tools and techniques used to transform raw data into meaningful insights. Additionally, explain how BI integrates with Data Science and how both fields complement each other in modern business analytics.	10	CO1	2
2.	A city government aims to improve urban traffic flow and reduce congestion in key areas. By analysing real-time traffic data collected from sensors, traffic cameras, and GPS devices installed in vehicles, the government seeks to predict traffic congestion during peak hours and adjust traffic signal timings accordingly. As part of an engineering course, you will walk through the data science life cycle to develop a predictive model.	10	CO1	3
3.	i) Differentiate between RDBMS and NoSQL. Discuss the different types of NoSQL databases showcasing their application process using suitable example from each type. ii) Explain the use of following terminologies using suitable SQL query a. % and _ b. IN and BETWEEN c. RANK() and DENSE RANK().	4 6	CO2	2
4.	The e-commerce platform has collected data from <i>customers</i>, their <i>orders</i>, and the <i>products</i> they purchase. The goal of this case study is to demonstrate how we can use SQL to transform, and analyse this data to derive useful insights, such as identifying high-value customers and tracking popular products. Perform SQL functions for the following objectives: [4 x 2.5 =10] 1. Identify the total spending of each customer. 2. Find high-value customers who have spent more than \$500. 3. Determine the most purchased product in the last 30 days. 4. List the users who have not placed any orders.	10	CO2	3



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✓ 5.	Consider a company database for a retail chain that contains the following tables: Sales : sale_id, store_id, product_id, quantity_sold, sale_date, sale_amount Stores : store_id, store_name, location Products: product_id, product_name, price Apply <i>SQL Window Functions</i> to solve the given queries to analyse the profit performance across the stores. ✓ 1. Find the total quantity sold for each product across all sales and rank the products based on the total quantity sold in descending order. Include product_name, total_quantity, and rank. [4] ✓ 2. Calculate the cumulative sales amount (sale_amount) for each product over time (ordered by sale_date). Include product_name, sale_date, sale_amount, and cumulative_sales. [3] ✓ 3. For each product, calculate the difference in quantity sold between the current sale and the previous sale (based on sale_date) and display product_name, sale_date, quantity_sold, and quantity_difference. [3]	10	CO2
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